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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,698	06/12/2001	Henricus Jozef Vergeest	40843-C	4316

7590 01/07/2005

The Whitaker Corporation  
Suite 450  
4550 New Linden Hill Road  
Wilmington, DE 19808

EXAMINER
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KIANNI, KAVEH C

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/880,698

Applicant(s)

VERGEEST ET AL.

Examiner

K. Cyrus Kianni

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6,7,9-15,18-21, 24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9,11,13-15 and 18 is/are allowed.
- 6) ☒ Claim(s) 6,7,10,12,19-21,24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

- Applicant's canceling of claims 1-5, 8, 16-17, 22 and 23 stated in response/amendments submitted on November 14, 2003 and 6/1/04 is acknowledged.

### ***Allowable Subject Matter***

1. The following is a statement of reasons for the indication of allowable subject matter: Claim 9 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious cutting said glass fiber along said path to shape a wedge on the end face of the fiber in combination with the rest of the limitations of the base claim. Claims 13-15 and 18 depend on claim 9 and therefore they are also allowed.
2. Claim 11 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious said predetermined angle being repeatable within less than  $\pm 5^\circ$  at the core region in combination with the rest of the limitations of the base claim in combination with the rest of the limitations of the base claim. The repeatability is defined as resolution for cutting the glass around the core region in which Kinoshita does not teach.

### ***Claim Rejections –***

### ***35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 6, 7, 10, 12, 19-21 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. (JP354030590A).

Regarding claims 6, 7 and 10, Kinoshita teaches a process for cutting at least one optical fiber (shown at least in figures 6 and 7, see abstract), the process comprising the steps of: introducing a glass fiber 6 into a holding and positioning device 27; actuating a laser device 20 to deliver a beam 7 having a power suitable for sublimating glass (see fig. 6, item 20 and abstract; see also translation: page 6, last parag.-page 7, 1<sup>st</sup> parag.); and effecting the relative movement of said beam along a path of said glass fiber 6 (see fig. 1, item beam 7 and lens 4 and see translation page 7, 4<sup>th</sup> parag.), thereby sublimating glass and cutting said glass fiber along said path (see translation page 7, 4<sup>th</sup> parag.; also page 9, 1<sup>st</sup> parag. and page 6, last parag.-page 7, 1<sup>st</sup> parag.), said path having at least one predetermined angle 90° greater than about 15° (see abstract and see also page 11, 1<sup>st</sup> parag.; wherein perpendicular angle is a 90°); and effecting the relative movement of said beam across said glass fiber 6 along a curved

path (see at least fig. 6, item curved path of the fiber 6; also translation, page 11, 1<sup>st</sup> parag.).

However, Kinoshita does not specifically teach wherein the above movement of the beam path is across the optical axis of the glass fiber, and that the above predetermined angle being about  $45^{\circ}$  and/or greater than  $15^{\circ}$  from perpendicular of the optical axis of said glass fiber. Nevertheless, Kinoshita states that the focusing lens holder 20 can move three-dimensionally (see trans. page 8, 2<sup>nd</sup> parag.), and the cutting fiber in an angle is implemented by easily controlling laser CO<sub>2</sub> output, three-dimensionally, on the fiber in order to obtain extremely reproducible fiber (see transl., at least page 8, 2<sup>nd</sup> parag. and page 12, 2<sup>nd</sup> parag.). Thus it would have been obvious to a person of ordinary skill in the art when the invention was made to adjust the angle of cutting fiber to a particular angle--such as by adjusting varying the angle of laser with respect to mirror 3, or the angle of mirror with respect to laser source 1—in order to obtain an optical fiber end having a particular angle such as about more than  $15^{\circ}$ , since such range would result in obtaining a an extremely high reproductive and clean end fiber having improved smoothness (see transl., at least page 12, 2<sup>nd</sup> parag.); and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

- The statements advanced in claims 6 and 10, above, as to the applicability and disclosure of Kinoshita et al. are incorporated herein as follows:

Regarding claim 12, Kinoshita teaches a process for cutting at least one optical fiber (shown at least in figures 6 and 7, see abstract), the process comprising the steps of:

introducing a glass fiber 6 into a holding and positioning device 27;  
actuating a laser device 20 to deliver a beam having a power suitable for sublimating glass (see fig. 6, item 20 and abstract); and effecting the relative movement of said beam across said glass fiber 6 along a path having a predetermined angle  $90^\circ$  (see analogous teaching for rejection of above claims), thereby sublimating glass 6 and cutting said glass fiber 6 along said path (see analogous teaching for rejection of above claims).

However, Kinoshita does not specifically wherein said predetermined angle being within about  $\pm 10 \mu\text{m}$  of a reference surface along the optical axis of said glass fiber.

Nevertheless, Kinoshita's fiber cutter includes a fine controller 29 that controls the relative movement the optical fiber 6 along its optical axis in vertical direction with respect to the surface of substrate 4 from  $0^\circ$  shown in at least figures 4 and 6 (see at least page 450, 1<sup>st</sup> col., 2<sup>nd</sup> parag.+). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to adjust the path of the fiber 6 along its optical axis with reference to the substrate 4 such the predetermined angle such as  $90^\circ$  would be within about  $\pm 10 \mu\text{m}$  of the surface of the substrate 4, since such range would result in obtaining a an extremely high reproductive and clean end fiber (see page 450, 1<sup>st</sup> col., 2<sup>nd</sup> parag.+); and since it has been held that where the

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general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 19, 20-21 and 24, Kinoshita teaches a fiber 6 obtained by introducing a glass fiber 6 into a holding and positioning device 27; actuating a laser device 20 to deliver a beam having a power suitable for sublimating glass (see fig. 6, item 20 and abstract); and effecting the relative movement of said beam along a path across said glass fiber 6 having a predetermined angle  $90^\circ$  (see page 450, 2<sup>nd</sup> col., 2<sup>nd</sup> parag.+), thereby sublimating glass 6 and cutting said glass fiber 6 along said path (see page 450, 1<sup>st</sup> col., 2<sup>nd</sup> parag.+), wherein said fiber 6, is integrated with an optical package and positioned within said optical package in a v-groove 30 (shown in fig. 6-7, item 6 in an integrated optical package) and comprises an end face (shown at least in fig. 1, item 6) and. However, Kinoshita does not specifically teach

However, Kinshita does not specifically teach (A) wherein the above movement of the beam path is across the optical axis of the glass fiber, (B) the above fiber comprises an end face at least a portion of which is angled at more than about  $15^\circ/45^\circ$  from perpendicular of the optical axis of said fiber, and (C) an end face having rounded edge. Regarding the above limitations A and B, the arguments presented in rejection of claim 6 is analogous in rejection of claims 19 and 24.

The limitation of claim 20, an end face, is not referred/connected to as having an antecedence basis to claim 19 (i.e, said an end face). Although it can be argued that the end face of a fiber is inherently rounded, nonetheless, it would have been obvious to

a person of ordinary skill in the art when the invention was made, either to use a conventional fiber which has already an end face that is angled or rounded before cutting operation since such fiber would be an optical fiber with smooth and clean face with high reproducibility (see trans., page 12, 2<sup>nd</sup> parag.).

Regarding claim 25, Kinoshita further teaches wherein said relative movement of said fiber to said laser beam is effected in one of two ways, a first way in which the fiber moves and the laser beam remains stationary, and a second way in which the laser beam moves and the fiber remains stationary (see page 449, 2<sup>nd</sup> col., 1<sup>st</sup>–3<sup>rd</sup> parag.; also see page 450, 1<sup>st</sup> col., 3<sup>rd</sup>–4<sup>th</sup> parag.).

#### ***Response to Arguments and Amendment***

4. Applicant's argument filed on 10/28/04 have been fully considered, however, they are not found persuasive. The applicant needs to narrow the scope of the invention in order to make the claimed invention to be allowed. The applicant argues (page 6, last parag. and page 7, 1<sup>st</sup> parag.) that Kinoshita does not teach using the laser beam in cutting operation to ablate (i.e., evaporated from solid state) and/or to melt glass. The examiner responds that:

(A) first the melting and/or ablating glass is not found in any of the claims

(B) second, these limitations are not equivalent to customary meaning of sublimation which is ordinarily considered to mean as to cause (a solid or a gas) to change state without becoming a liquid (see Web. II Dictionary). Since cutting operation by Kinoshita



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is implemented through thermal stress, the thermal stress is central in causing the state of the solid glass to be change in the focal area of the laser beam which generates heat, generates stress and consequently provide the necessary condition so as the fiber to be cut.

(C) the laser device/technology of Kinoshita and that of applicant are equivalent and thus it is obvious to a person of ordinary skill in the art that both lasers having a desired\selective laser power would have equivalent effect on a given fiber.

**Additional Citation of Relevant Prior Art**

5. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Mansfield et al. 5842622

Borer et al. 5395025

Webster's II New College Dictionary (1995), word "Sublimation"

**THIS ACTION IS MADE FINAL**

This action in response to applicant's amendment made FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Contact Information**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9306 (for formal communications intended for entry)

**or:**

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni  
Patent Examiner  
Group Art Unit 2883

January 4, 2005